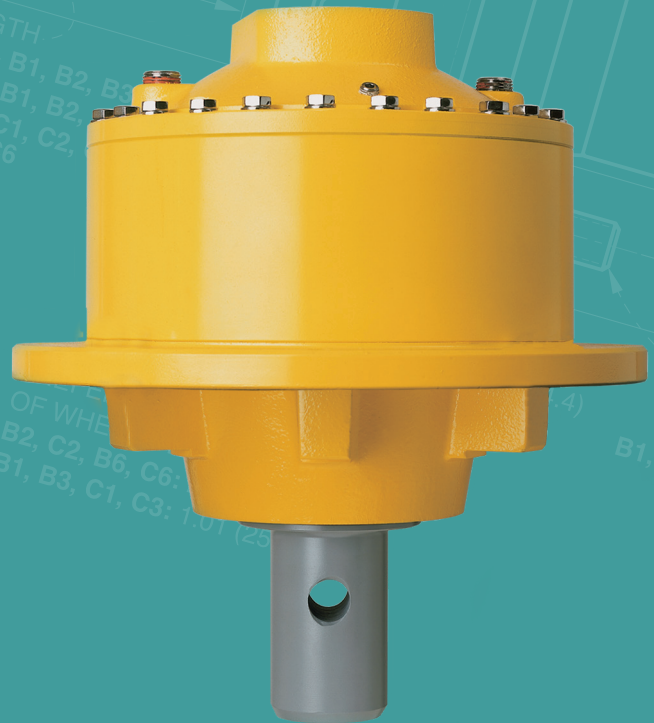
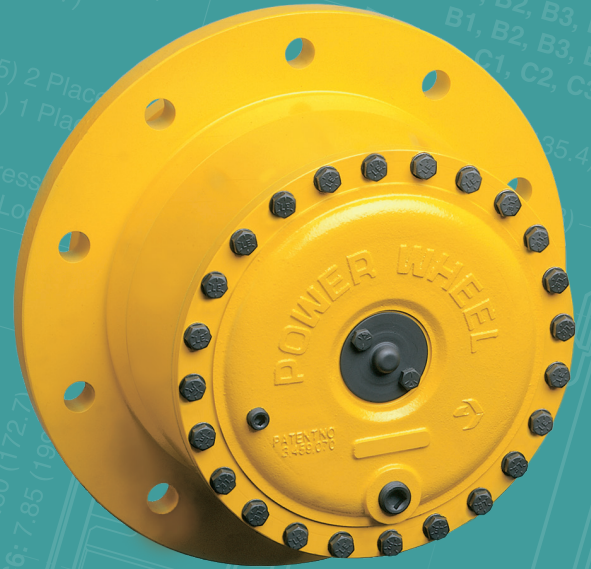
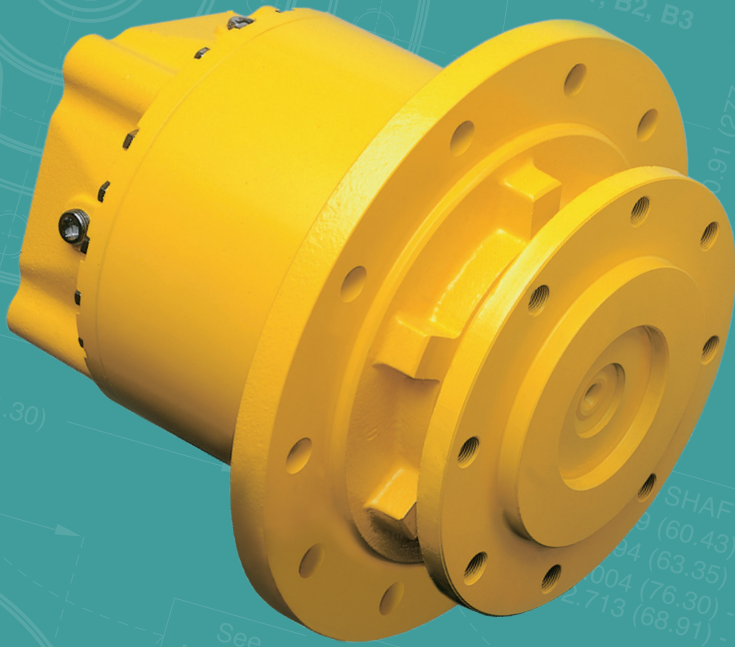


AuburnGear

Engineered Drive Solutions



Power Wheel® Model 9 Planetary Gear Drives

260.925.3200

AuburnGear.com

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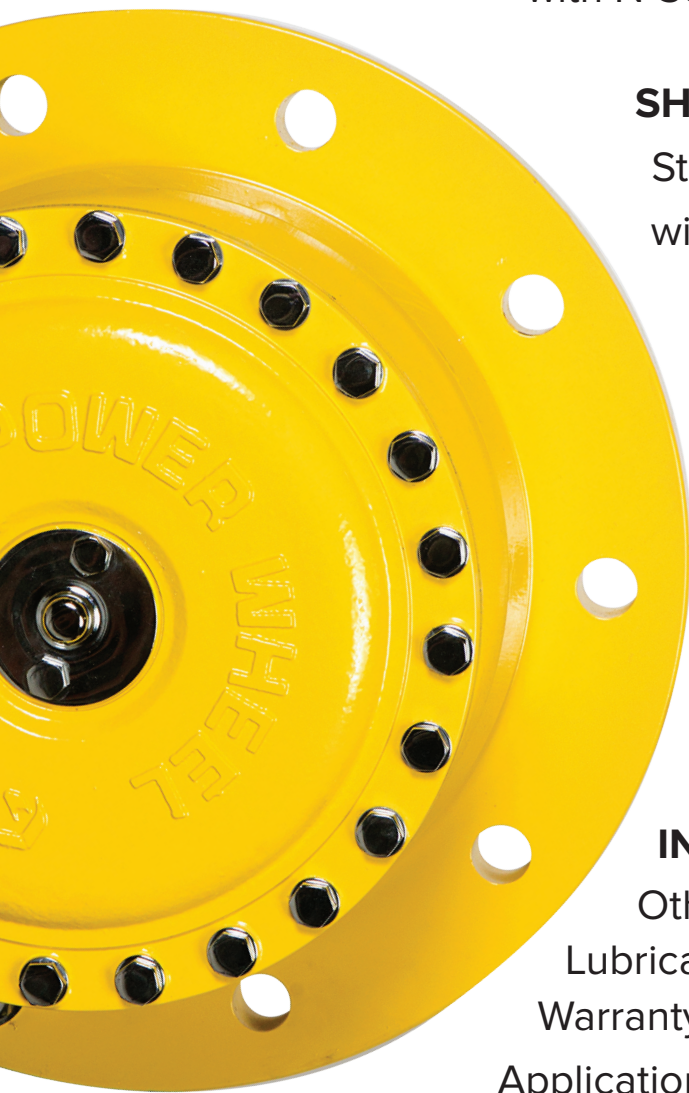
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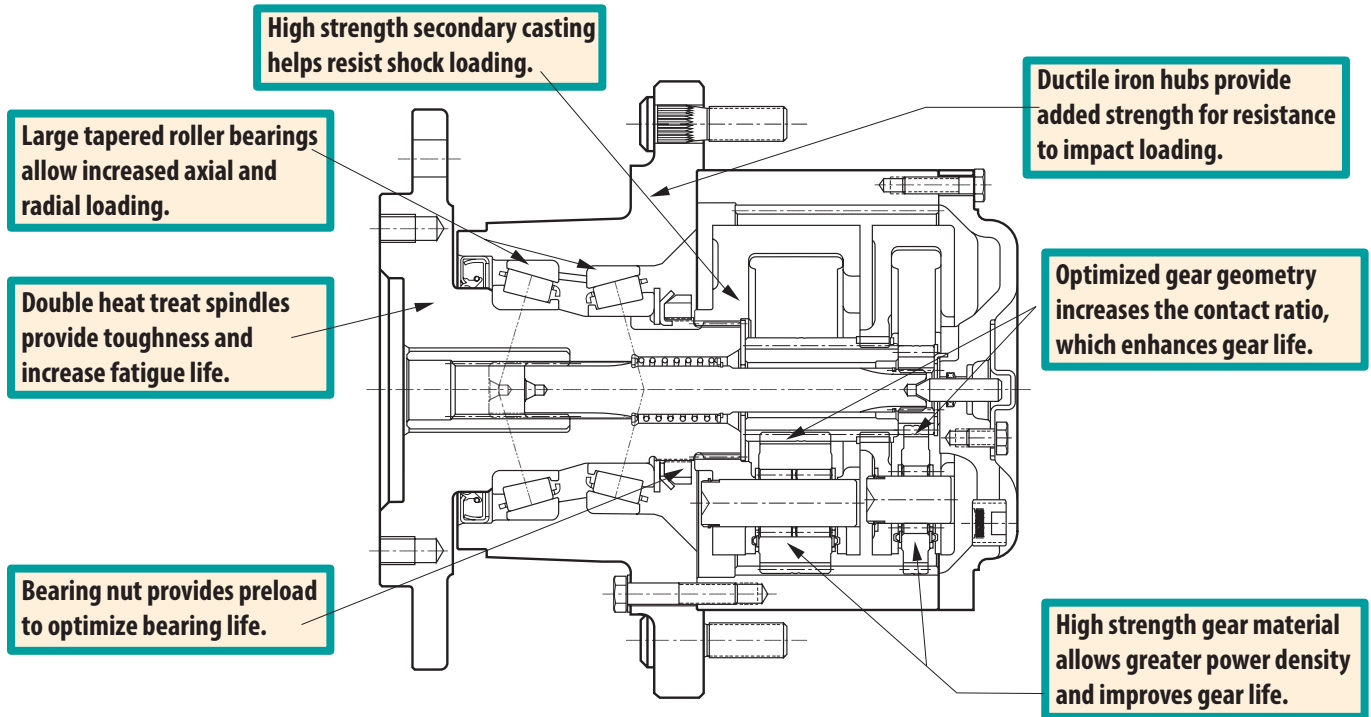
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Power Wheel® Model 9 Features



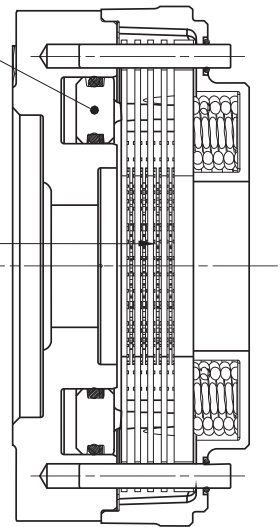
Power Wheel® Model 9 Features A2 Series Integral Parking Brake

GENERAL A2 SERIES DATA:

1. Maximum operating pressure is 3,000 psi (206.4 Bar). Pressure spikes or surges not to exceed 3,500 psi (240.8 Bar). Surge pressure in excess of 3,500 psi (240.8 Bar) caused by spikes in the hydraulic system could shorten brake life and must be avoided.
2. Use only SAE grade 8 mounting bolts and torque to 80-90 lb. ft. (108-122N-m) for motor mounting.
3. **PRECAUTION:** Bench testing may cause distortion of components or bolt failure. Mounting bolts must be used for supplemental clamping.
4. Minimum Release Pressure is defined as the hydraulic pressure required to obtain full running clearance.
5. Cubic Inch Displacement is the volume of oil required to release the brake piston 1.0 in³ (16.4cc) for a new brake and 2.0 in³ (32.8cc) for a worn brake pack.

PISTON:
Improved design for superior life at higher pressures

FRICION DISCS:
"Heavy Duty Graphitic Paper" for wet sump applications.
Characteristics:
Superior energy capability, high and stable coefficient of friction and smooth engagement.



BRAKE RATINGS

MOUNT	MODEL	HOLDING TORQUE	MIN. RELEASE PRESSURE	STYLE
SAE A & B	B1	1,540 lb-in (174 N-m)	190 PSI (13.1 BAR)	Short
SAE A & B	B2	1,800 lb-in (203 N-m)	220 PSI (15.1 BAR)	Short
SAE A & B	B3	2,400 lb-in (271 N-m)	290 PSI (20.0 BAR)	Short
SAE B	B4	2,400 lb-in (271 N-m)	160 PSI (11.0 BAR)	Long
SAE C	B4	2,400 lb-in (271 N-m)	135 PSI (9.3 BAR)	—
SAE A & B	B5	3,200 lb-in (362 N-m)	220 PSI (15.1 BAR)	Long
SAE A & B	B6	3,600 lb-in (407 N-m)	230 PSI (15.8 BAR)	Long
SAE C	B6	3,600 lb-in (407 N-m)	185 PSI (12.7 BAR)	—
SAE A & B	B7	4,200 lb-in (475 N-m)	260 PSI (17.9 BAR)	Long
SAE C	B7	4,200 lb-in (475 N-m)	210 PSI (14.5 BAR)	—

Maximum Release Pressure 3,000 PSI (206.4 BAR)

Model 9 Wheel Drives - Double Reduction

General Specifications

Max. intermittent output torque^{1,2}130,000 lb-in (14,690 Nm) Approximate Weight.....208lbs(94.3kg)
 Max. input speed²5,000 RPM Approximate Oil capacity..... 57 oz (1,685 cc)

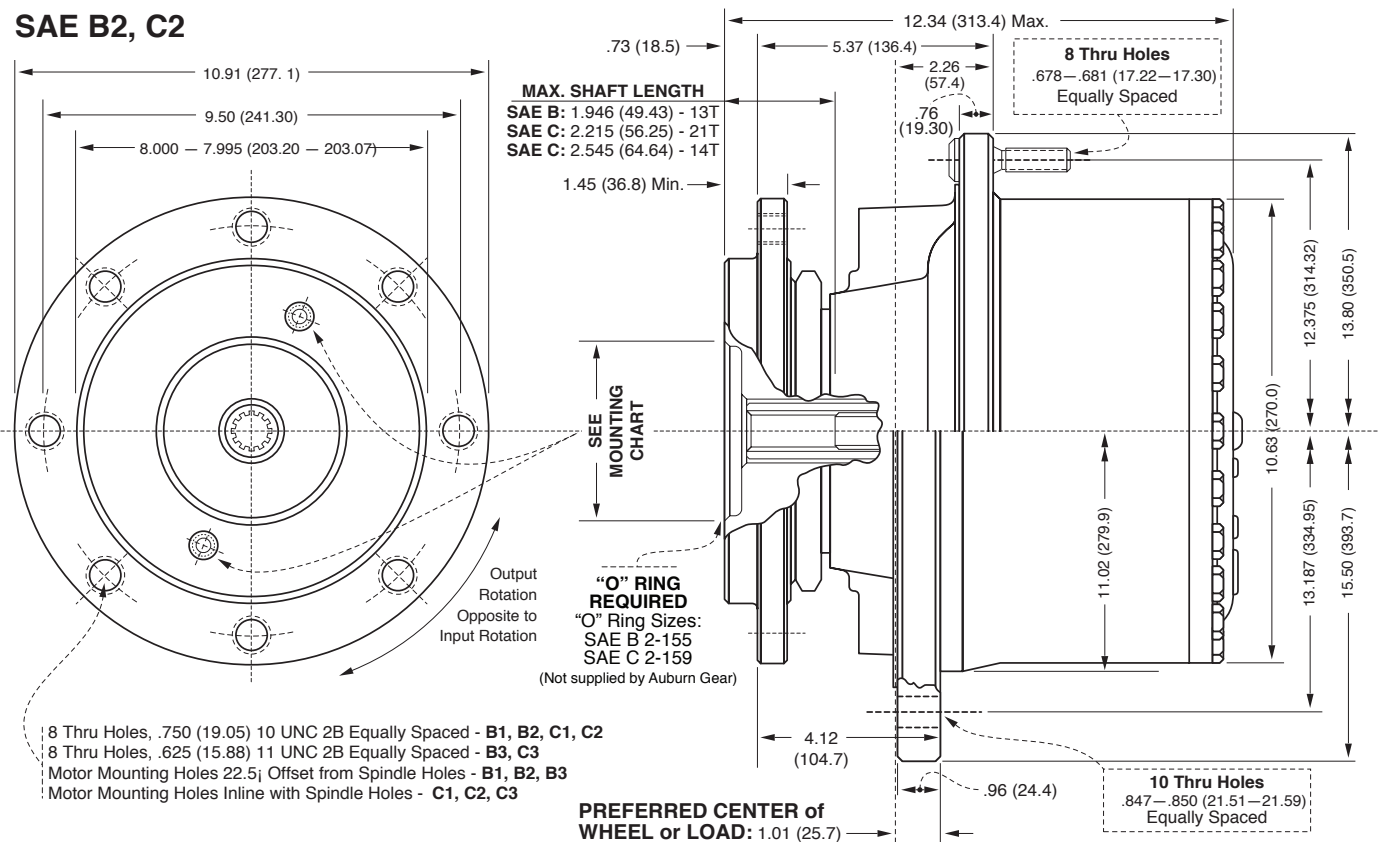
For Lubrication Data, see Page 22

¹Depending on the duty cycle and the nature of the application, a normal continuous output torque of 1/3 to 1/2 of the maximum intermittent should yield satisfactory Power Wheel life. Customer testing and application analysis is strongly recommended.

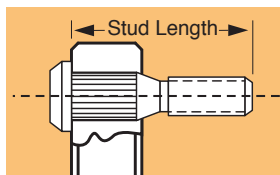
²If application exceeds published limits, contact Auburn Gear.

Dimensions given in: INCHES (mm)

SAE B2, C2



SAE B1, B3, C1, C3



Wheel Stud – Detail

Note that the stud lengths shown in the feature chart represent the total length of the stud under the head.

NON-POWERED UNITS ARE ALSO AVAILABLE
Contact Auburn Gear for Information

FEATURE CHART: MODEL 9 WHEEL DRIVES DOUBLE REDUCTION

OPTIONS	DESCRIPTION	MAKE ALL SELECTIONS WITHIN ONE COLUMN		ORDER CODES	USE OPTION ORDER CODES TO BUILD PART NUMBER			
MOTOR PILOT/HUB	B1	•		9WB1	9WC1			
	B2	•		9WB2				
	B3	•		9WB3				
	C1		•	9WC1				
	C2		•	9WC2				
	C3		•	9WC3				
INPUT SPLINE	13T. ¹⁶ / ₃₂	•	•	13		14		
	14T. ¹² / ₂₄		•	14				
	21T. ¹⁶ / ₃₂		•	21				
RATIO OPTIONS	14.39:1	•	•	14				
	17.83:1	•	•	17				
	22.59:1	•	•	22				
	25.71:1	•	•	25				
	30.50:1	•	•	30				
	34.20:1	•	•	34		34		
	41.42:1	•	•	41				
	49.00:1	•	•	49				
WHEEL STUDS	⁵ / ₈ " by 2.37	•	•	8			8	
	³ / ₄ " by 2.76*	•	•	9				
	³ / ₄ " by 3.21*	•	•	11				
	⁹ / ₁₆ " by 2.75	•	•	18				
	NONE	•	•	0				
SPECIAL FEATURES	Brake Disc**	•	•	D				
	Boot Seal	•	•	Z			Z	
	Brake Disc Holes	•	•	DH				
	Quick Disconnect	•	•	Q				
	Oil Plugs/ Spindle Side	•	•	P				
	H.D. Multi-Lip Oil Seal		•	T				
					9WC1	14	34	8

Select desired characteristics from chart, note correct order codes, and order using sample format shown at right:

* Not available with B2 or C2 mounting
** Customer supplied, Auburn Gear assembled

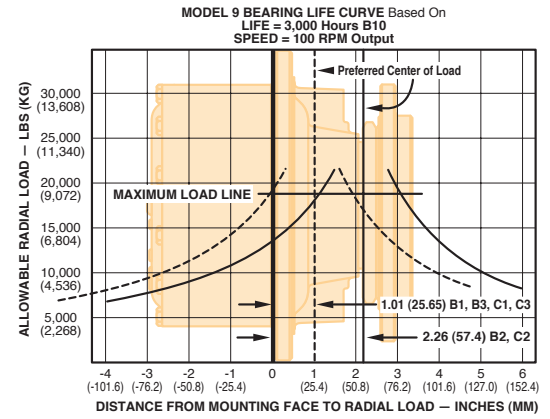
MOTOR MOUNTING CHART

MOTOR MOUNTING HOLE DIMENSIONS	DIAMETER
B1, B2, B3 (2)–.500 (12.70) -13 UNC. 2B Thd on 5.750 (146.05) B. C.*	ø 4.001 - 4.006 (101.62 - 101.75)
C1, C2, C3 (4)–.500 (12.70) - 13 UNC. 2B Thd on 6.375 (161.93) B. C.*	ø 5.001 - 5.006 (127.02 - 127.15)

* "O" RING OR GASKET REQUIRED (Not Supplied by Auburn Gear)
"O" RING SIZES: SAE "B" 2–155, SAE "C" 2–159

NOTE:

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NOTE:

These curves are supplied as a design guide and apply to resultant radial load only. They indicate the importance of maintaining wheel position over the bearing center.

For actual analysis, applications should be reviewed by Auburn Gear Engineering using data supplied on Application Data Form.

BEARING LOAD, LIFE AND SPEED RELATIONSHIPS

$$LF = \frac{SF \times R}{R'}$$

R = Allowable resultant load for given location from mounting flange

R' = Anticipated load at location from mounting flange

LF = Life Factor from table (see below)

SF = Speed Factor from table (see below)

OUTPUT SPEED (RPM)	SF	LF	BEARING HOURS B-10 LIFE
5	2.456	.584	500
10	1.994	.719	1000
20	1.620	.812	1500
30	1.435	.886	2000
40	1.316	.947	2500
50	1.231	1.000	3000
60	1.165	1.047	3500
70	1.113	1.090	4000
80	1.069	1.130	4500
90	1.032	1.166	5000
100	1.000	1.231	6000
200	.812	1.289	7000
300	.719	1.342	8000
400	.659	1.390	9000
500	.617	1.435	10000

CAUTION: The same torsional loading constraints used in the driving mode must be used in the braking mode when braking through the Power Wheel drive gear set.

Model 9 Wheel Drives - Double Reduction with A2 Series Integral Parking Brake

General Specifications

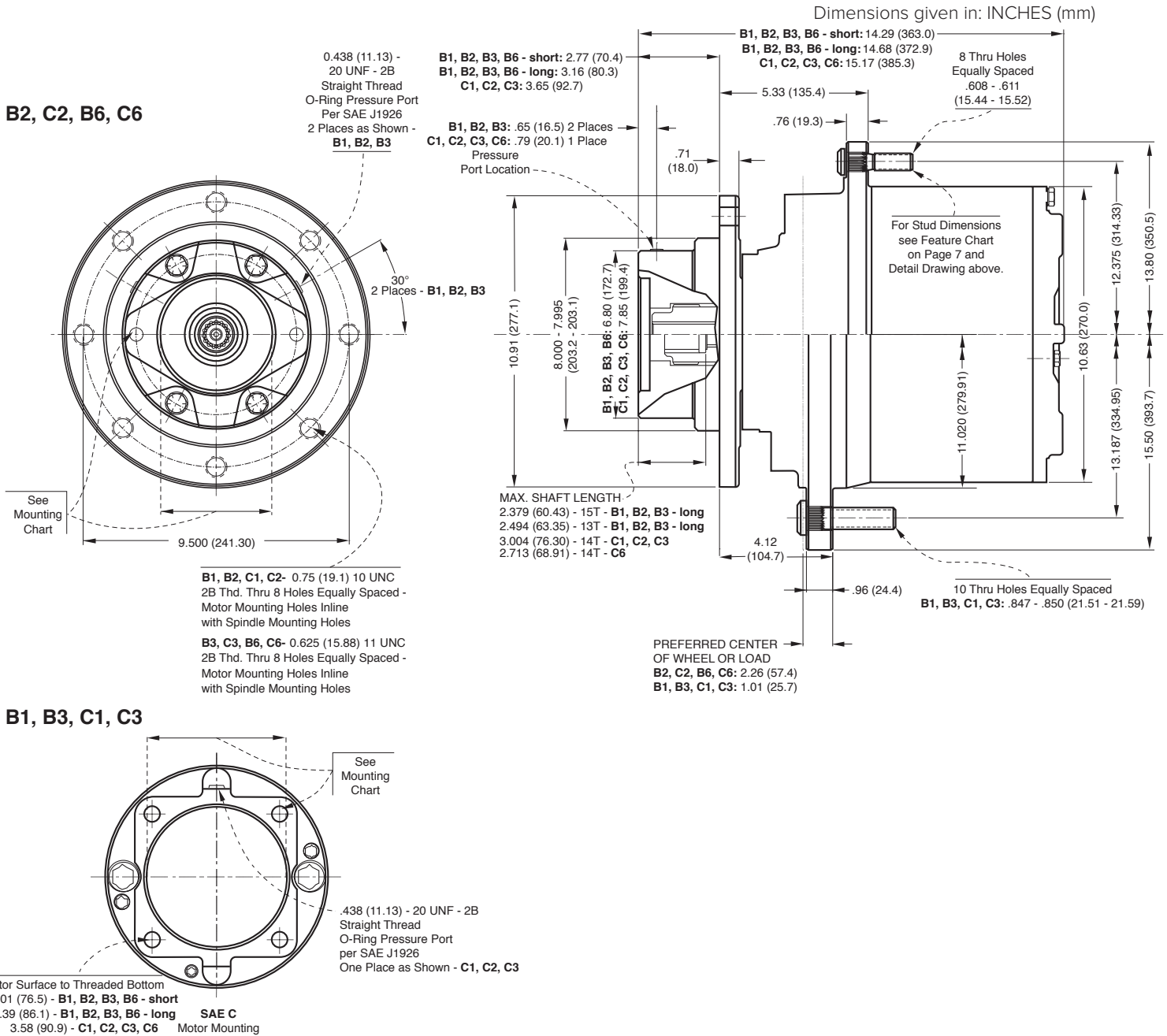
Max. intermittent output torque^{1,2}130,000 lb-in (14,690 Nm) Approximate Weight..... 225 lbs(102kg)
 Max. input speed³3,500 RPM Approximate Oil capacity..... 62 oz (1,835 cc)

For Lubrication Data, see Page 22 | For Brake Data, see Page 3

¹Depending on the duty cycle and the nature of the application, a normal continuous output torque of 1/3 to 1/2 of the maximum intermittent should yield satisfactory Power Wheel life. Customer testing and application analysis is strongly recommended.

²If application exceeds published limits, contact Auburn Gear.

³For input speeds exceeding 3,500 rpm contact Auburn Gear for duty cycle analysis.



FEATURE CHART: MODEL 9 WHEEL DRIVES DOUBLE REDUCTION with A2 SERIES BRAKE

OPTIONS	DESCRIPTION	MAKE ALL SELECTIONS WITHIN ONE COLUMN		ORDER CODES	USE OPTION ORDER CODES TO BUILD PART NUMBER					
MOTOR PILOT/HUB	B1	•		9WB1						
	B2	•		9WB2						
	B3	•		9WB3						
	B6	•		9WB6						
	C1		•	9WC1						
	C2		•	9WC2						
	C3		•	9WC3	9WC3					
	C6		•	9WC6						
INPUT SPLINE	13T. ¹⁶ / ₃₂	•		13						
	14T. ¹² / ₂₄	•	•	14	14					
	15T. ¹⁶ / ₃₂	•		15						
RATIO OPTIONS	14.39:1	•	•	14						
	17.83:1	•	•	17						
	22.59:1	•	•	22						
	25.71:1	•	•	25						
	30.50:1	•	•	30						
	34.20:1	•	•	34		34				
	41.42:1	•	•	41						
	49.00:1	•	•	49						
WHEEL STUDS	⁵ / ₈ " by 2.37	•	•	8				8		
	³ / ₄ " by 2.76*	•	•	9						
	³ / ₄ " by 3.21*	•	•	11						
	⁹ / ₁₆ " by 2.75	•	•	18						
	NONE	•	•	0						
PARKING BRAKE	1,540 lb-in	•		B1						
	1,800 lb-in	•		B2						
	2,400 lb-in	•		B3						
	2,400 lb-in	•	•	B4						
	3,200 lb-in	•		B5						
	3,600 lb-in	•	•	B6				B6		
	4,200 lb-in	•	•	B7						
SPECIAL FEATURES	Brake Disc**	•	•	D						
	Boot Seal	•	•	Z					Z	
	Brake Disc Holes	•	•	DH						
	Quick Disconnect	•	•	Q						
	Oil Plugs/ Spindle Side	•	•	P						
	H, D, Multi-Lip Seal		•	T						
						9WC3	14	34	8	B6

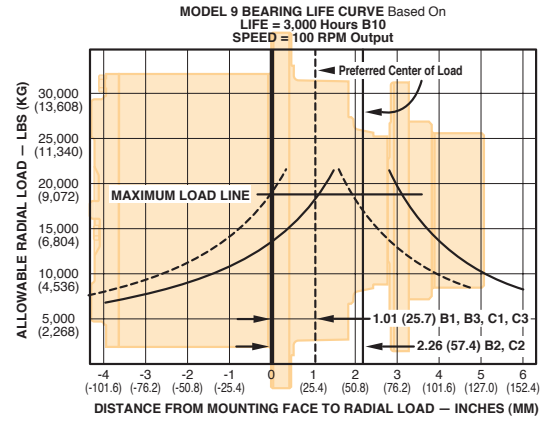
Select desired characteristics from chart, note correct order codes, and order using sample format shown at right:

* Not available with B2, C2, B6, or C6 mounting
** Customer Supplied, Auburn Gear Assembled

MOTOR MOUNTING CHART

MOTOR MOUNTING HOLE DIMENSIONS	DIAMETER
B1, B2, B3 (2)–.500 (12.70) -13 UNC. 2B Thd on 5.750 (146.05) B. C.*	ø 4.001 - 4.006 (101.62 - 101.75)
C1, C2, C3, C6 (4)–.500 (12.70) - 13 UNC. 2B Thd on 6.375 (161.93) B. C.*	ø 5.001 - 5.006 (127.02 - 127.15)

* "O" RING OR GASKET REQUIRED (Not Supplied by Auburn Gear)
"O" RING SIZES: SAE "B" 2–155, SAE "C" 2–159



NOTE:

These curves are supplied as a design guide and apply to resultant radial load only. They indicate the importance of maintaining wheel position over the bearing center.

For actual analysis, applications should be reviewed by Auburn Gear Engineering using data supplied on Application Data Form.

BEARING LOAD, LIFE AND SPEED RELATIONSHIPS

$$LF = \frac{SF \times R}{R'}$$

R = Allowable resultant load for given location from mounting flange

R' = Anticipated load at location from mounting flange

LF = Life Factor from table (see below)

SF = Speed Factor from table (see below)

OUTPUT SPEED (RPM)	SF	LF	BEARING HOURS B-10 LIFE
5	2.456	.584	500
10	1.994	.719	1000
20	1.620	.812	1500
30	1.435	.886	2000
40	1.316	.947	2500
50	1.231	1.000	3000
60	1.165	1.047	3500
70	1.113	1.090	4000
80	1.069	1.130	4500
90	1.032	1.166	5000
100	1.000	1.231	6000
200	.812	1.289	7000
300	.719	1.342	8000
400	.659	1.390	9000
500	.617	1.435	10000

CAUTION: The same torsional loading constraints used in the driving mode must be used in the braking mode when braking through the Power Wheel drive gear set.

NOTE:

The data presented in this catalog is for general information and preliminary layout purposes only. Auburn Gear, through its policy of continual improvement, reserves the right to update its products; therefore, the information presented is subject to change. For specific application and/or dimensional information, contact Auburn Gear.

Model 9 Wheel Drives - Double Reduction with N Series Fully Integrated Brake

General Specifications

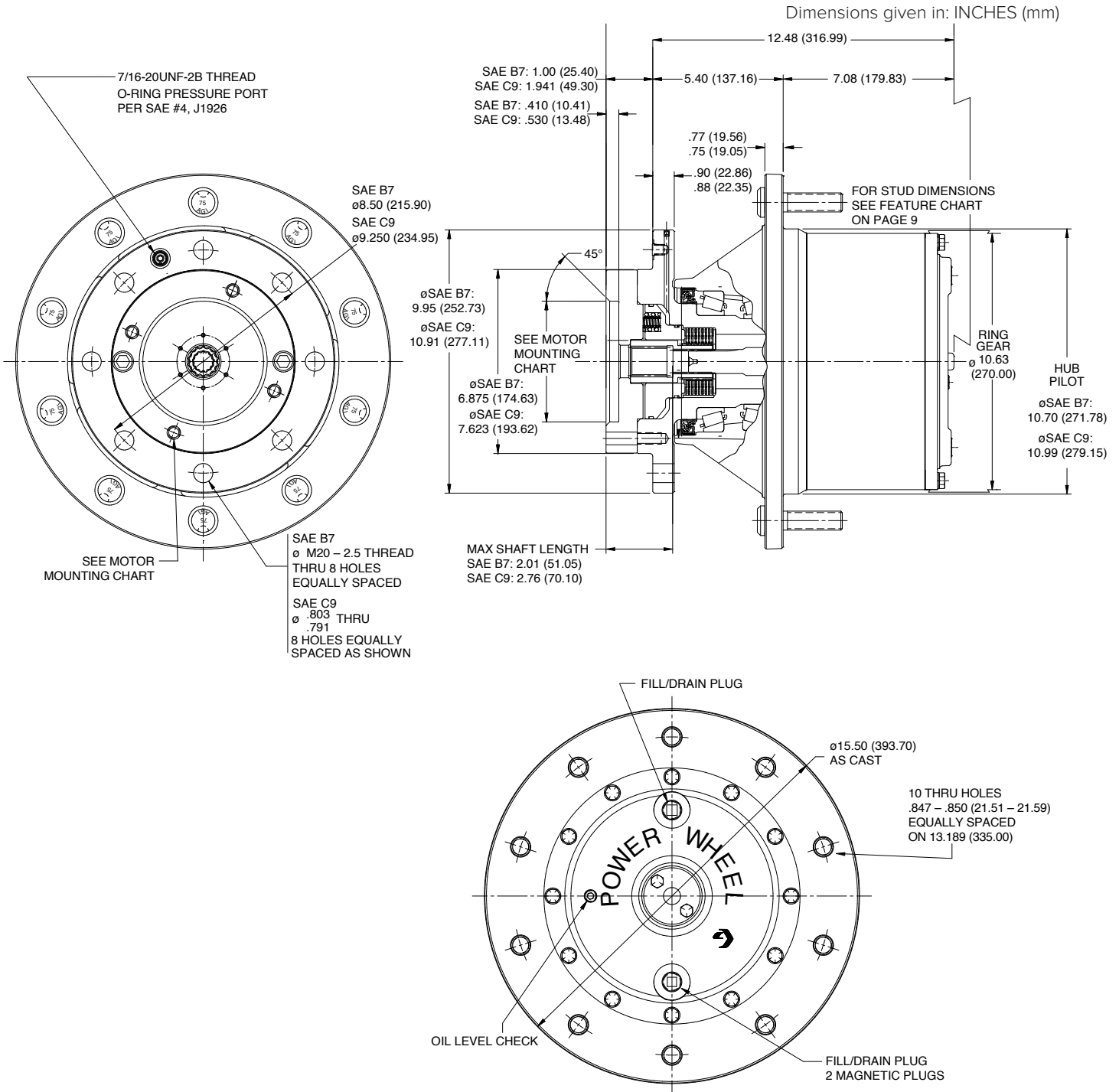
Max. intermittent output torque ^{1,2}	130,000 lb-in (14,690 Nm)	Approximate Weight.....	225 lbs(102kg)
Max. input speed ³	3,500 RPM	Approximate Oil capacity.....	62 oz (1,835 cc)

For Lubrication Data, see Page 22

¹Depending on the duty cycle and the nature of the application, a normal continuous output torque of 1/3 to 1/2 of the maximum intermittent should yield satisfactory Power Wheel life. Customer testing and application analysis is strongly recommended.

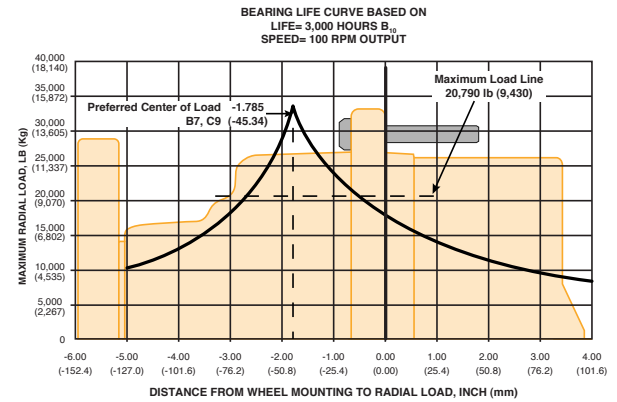
²If application exceeds published limits, contact Auburn Gear.

³For input speeds exceeding 3,500 rpm contact Auburn Gear for duty cycle analysis.



FEATURE CHART: MODEL 9 WHEEL DRIVES DOUBLE REDUCTION with N-SERIES BRAKE

OPTIONS	DESCRIPTION	MAKE ALL SELECTIONS WITHIN ONE COLUMN		ORDER CODES	USE OPTION ORDER CODES TO BUILD PART NUMBER					
MOTOR PILOT/HUB	SAE B7	•		9WB7	9WB7					
	SAE C9		•	9WC9						
INPUT SPLINE	14T - 12/24		•	14						
	15T - 16/32	•		15	15					
RATIO OPTIONS	14.39:1	•	•	14						
	17.83:1	•	•	17						
	22.59:1	•	•	22						
	25.71:1	•	•	25						
	30.50:1	•	•	30						
	34.20:1	•	•	34	34					
	41.42:1	•	•	41						
49.00:1	•	•	49							
WHEEL STUDS	None	•	•	0						
	5/8" by 2.37	•	•	8						
	3/4" by 2.76	•	•	9						
	3/4" by 3.21	•	•	11		11				
	9/16" by 2.75	•	•	18						
M20-1.5-6g	•	•	19							
PARKING BRAKE	2,770 lb-in/125 psi	•	•	N4			N4			
	3,600 lb-in/300 psi	•	•	N6						
	None	•	•	00						
SPECIAL FEATURES	Oil Plug on Spindle Side	•	•	P			P			
	H.D. Multi-lip Seal	•	•	T			T			
Select desired characteristics from chart, note correct order codes, and order using sample format shown at right:					9WB7	15	34	11	N4	PT



NOTE:

These curves are supplied as a design guide and apply to resultant radial load only. They indicate the importance of maintaining wheel position over the bearing center.

For actual analysis, applications should be reviewed by Auburn Gear Engineering using data supplied on Application Data Form.

BEARING LOAD, LIFE AND SPEED RELATIONSHIPS

$$LF = \frac{SF \times R}{R'}$$

R = Allowable resultant load for given location from mounting flange

R' = Anticipated load at location from mounting flange

LF = Life Factor from table (see below)

SF = Speed Factor from table (see below)

OUTPUT SPEED (RPM)	SF	LF	BEARING HOURS B-10 LIFE
5	2.456	.584	500
10	1.994	.719	1000
20	1.620	.812	1500
30	1.435	.886	2000
40	1.316	.947	2500
50	1.231	1.000	3000
60	1.165	1.047	3500
70	1.113	1.090	4000
80	1.069	1.130	4500
90	1.032	1.166	5000
100	1.000	1.231	6000
200	.812	1.289	7000
300	.719	1.342	8000
400	.659	1.390	9000
500	.617	1.435	10000

CAUTION: The same torsional loading constraints used in the driving mode must be used in the braking mode when braking through the Power Wheel drive gear set.

NOTE:

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MOTOR MOUNTING CHART

DIMENSION "X"	DIM. "Y"
SAE B7: (2) - .500 (12.70) - 13 UNC - 2B Thd Holes on 5.750 (146.05) B.C. *	4.001 - 4.006 (101,62 - 101,75)
SAE C9: (4) - M12 x 1.75 Thd Holes, 1.12 Min Depth, Equally Spaced on 6.375 B.C. *	5.001 - 5.006 (127.02 - 127.15)

* "O" RING OR GASKET REQUIRED (Not Supplied by Auburn Gear)
"O" RING SIZES: SAE "B" 2-155, SAE "C" 2-159

Model 9 Shaft Output Drives - Double Reduction

General Specifications

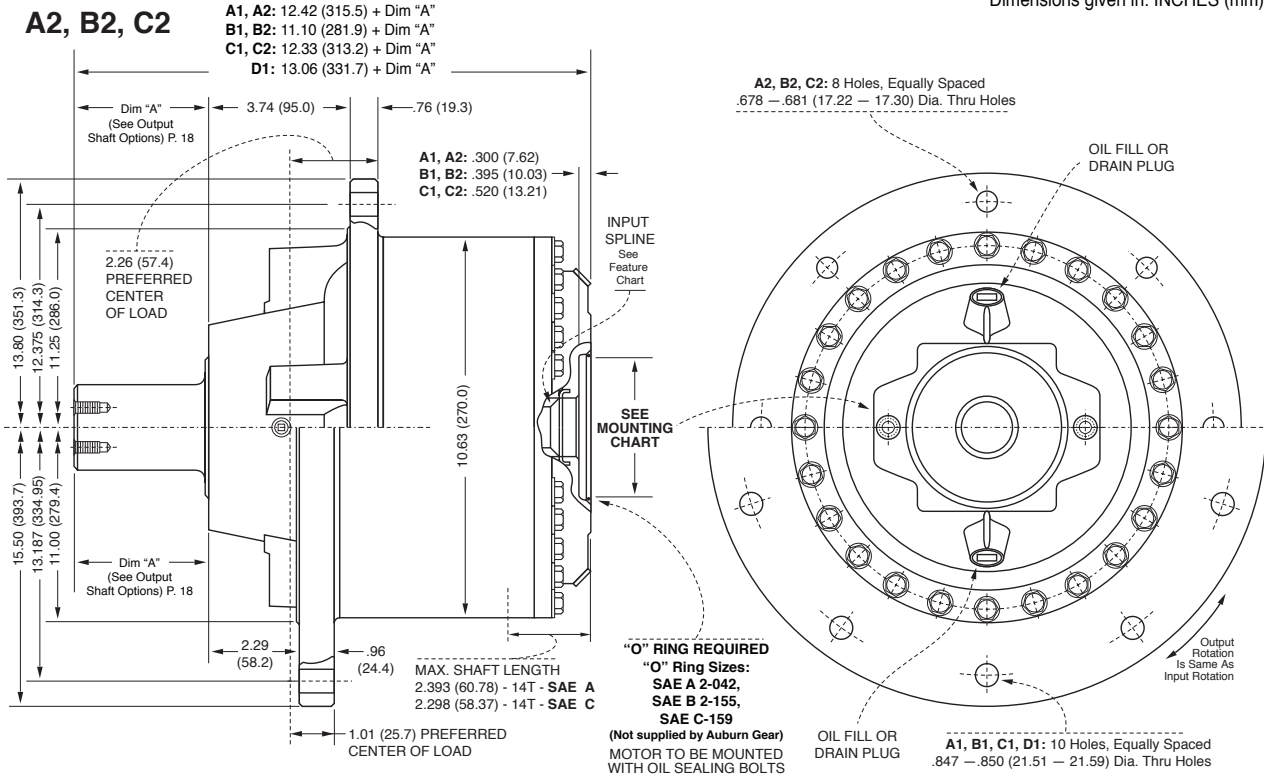
Max. intermittent output torque^{1,2}130,000 lb-in (14,690 Nm) Approximate Weight 194 lbs (88kg)
 Max. input speed²5,000 RPM Approximate Oil capacity..... 50 oz (1,478 cc)

For Lubrication Data, see Page 22

¹Depending on the duty cycle and the nature of the application, a normal continuous output torque of 1/3 to 1/2 of the maximum intermittent should yield satisfactory Power Wheel life. Customer testing and application analysis is strongly recommended.

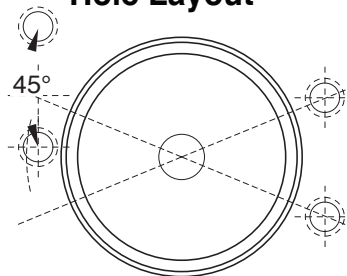
²If application exceeds published limits, contact Auburn Gear.

Dimensions given in: INCHES (mm)



A1, B1, C1, D1

SAE A1, A2 Hole Layout



FEATURE CHART: MODEL 9 SHAFT OUTPUT DRIVES - DOUBLE REDUCTION

OPTIONS	DESCRIPTION	MAKE ALL SELECTIONS WITHIN ONE COLUMN				ORDER CODES	USE OPTION ORDER CODES TO BUILD PART NUMBER				
MOTOR PILOT/HUB	A1	•				9SA1					
	A2	•				9SA2					
	B1			•	•	9SB1					
	B2			•	•	9SB2					
	C1	•	•			9SC1	9SC1				
	C2	•	•			9SC2					
	D1			•		9SD1					
INPUT SPLINE	13T ¹⁶ / ₃₂			•		13					
	13T ⁸ / ₁₆			•		13					
	14T ¹² / ₂₄	•				14		14			
	1" 6B				•	6B					
	17T ¹² / ₂₄			•		17					
RATIO OPTIONS	15.39:1	•		•	•	15					
	18.83:1	•	•	•	•	18					
	23.59:1	•		•	•	23					
	26.71:1	•		•	•	26					
	31.50:1	•		•	•	31		31			
	35.20:1	•		•	•	35					
	42.42:1	•		•	•	42					
	50.00:1	•		•	•	50					
OUTPUT SHAFTS	2.5" Hex	•	•	•	•	H1				H1	
	2.625" Hex	•	•	•	•	H2					
	3.0" Keyed	•	•	•	•	K2					
	20T - ⁸ / ₁₆	•	•	•	•	20					
	23T - ⁸ / ₁₆	•	•	•	•	23S					
	23T - ⁸ / ₁₆	•	•	•	•	23L					
SPECIAL FEATURES	Oil Plug/ Shaft Side	•	•	•	•	P				P	
	H.D. Multi-Lip Seal	•	•	•	•	T					
Select desired characteristics from chart, note correct order codes, and order using sample format shown at right:							9SC1	14	31	H1	P

MOTOR MOUNTING CHART

MOTOR MOUNTING HOLE DIMENSIONS	DIAMETER
A1, A2 (4)–.500 (12.70) -13 UNC 2B Thd Holes on 4.188 (106.38) B.C.	ø 3.251 - 3.256 (82.58 - 82.70)
B1, B2 (2)–.500 (12.70) -13 UNC. 2B Thd Holes on 5.750 (146.05) B. C.*	ø 4.001 - 4.006 (101.62 - 101.75)
C1, C2 (4)– .500 (12.70) - 13 UNC. 2B Thd Holes on 6.375 (161.93) B. C.* AND (2)– .625 (15.88) -11 UNC 2B Thd Holes on 7.125 (180.98) B.C.	ø 5.001 - 5.006 (127.02 - 127.15)
D1 (4)–.750 (19.05) -10 UNC. 2B Thd Holes on 9.00 (228.60) B. C.	ø 6.001 - 6.006 (152.43 - 152.55)

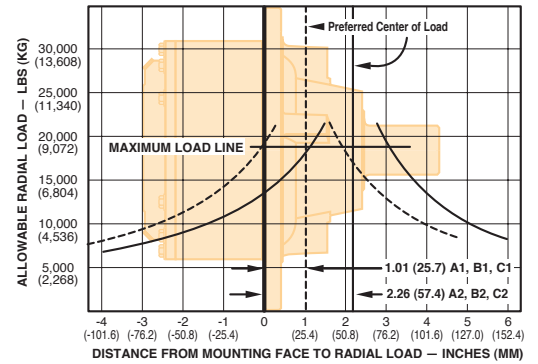
* "O" RING OR GASKET REQUIRED (Not Supplied by Auburn Gear)

"O" RING SIZES: SAE "A" 2-042, SAE "B" 2-155, SAE "C" 2-159, SAE "D" 2-163

NOTE:

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MODEL 9 BEARING LIFE CURVE Based On
LIFE = 3,000 Hours B10
SPEED = 100 RPM Output



NOTE:

These curves are supplied as a design guide and apply to resultant radial load only. They indicate the importance of maintaining wheel position over the bearing center.

For actual analysis, applications should be reviewed by Auburn Gear Engineering using data supplied on Application Data Form.

BEARING LOAD, LIFE AND SPEED RELATIONSHIPS

$$LF = \frac{SF \times R}{R'}$$

R = Allowable resultant load for given location from mounting flange

R' = Anticipated load at location from mounting flange

LF = Life Factor from table (see below)

SF = Speed Factor from table (see below)

OUTPUT SPEED (RPM)	SF	LF	BEARING HOURS B-10 LIFE
5	2.456	.584	500
10	1.994	.719	1000
20	1.620	.812	1500
30	1.435	.886	2000
40	1.316	.947	2500
50	1.231	1.000	3000
60	1.165	1.047	3500
70	1.113	1.090	4000
80	1.069	1.130	4500
90	1.032	1.166	5000
100	1.000	1.231	6000
200	.812	1.289	7000
300	.719	1.342	8000
400	.659	1.390	9000
500	.617	1.435	10000

CAUTION: The same torsional loading constraints used in the driving mode must be used in the braking mode when braking through the Power Wheel drive gear set.

Model 9 Shaft Output Drives - Double Reduction with A2 Series Integral Parking Brake¹

General Specifications

Max. intermittent output torque^{2,3}130,000 lb-in (14,690 Nm) Approximate Weight 211 lbs (96kg)
 Max. input speed⁴3,500 RPM Approximate Oil capacity..... 50 oz (1,478 cc)

For Lubrication Data, see Page 22 | For Brake Data, see Page 3

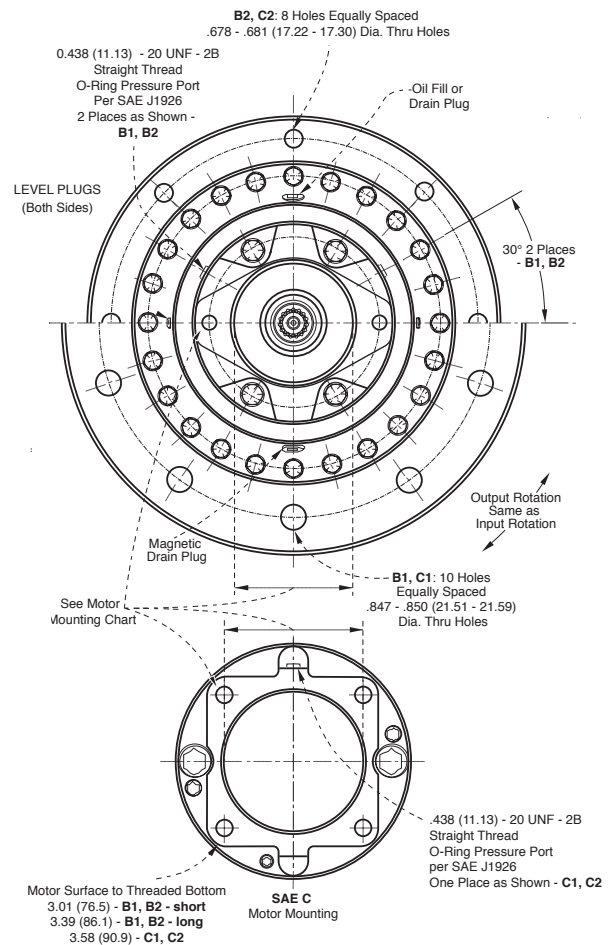
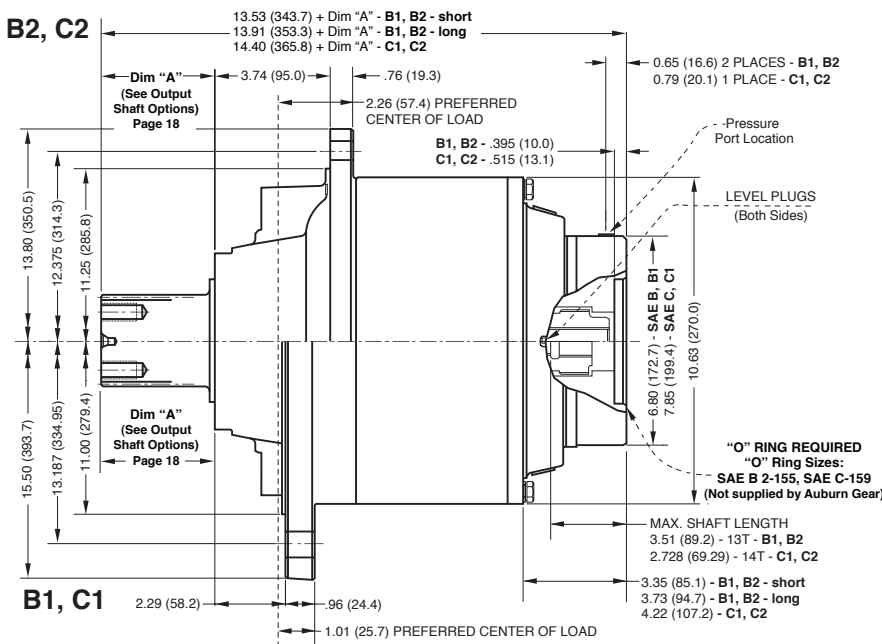
¹For vertical applications, shaft up or shaft down, contact Auburn Gear.

²Depending on the duty cycle and the nature of the application, a normal continuous output torque of 1/3 to 1/2 of the maximum intermittent should yield satisfactory Power Wheel life. Customer testing and application analysis is strongly recommended.

³If application exceeds published limits, contact Auburn Gear.

⁴For input speeds exceeding 3,500 rpm, contact Auburn Gear.

Dimensions given in: INCHES (mm)



FEATURE CHART: MODEL 9 SHAFT OUTPUT DRIVES - DOUBLE REDUCTION with A2 SERIES BRAKE

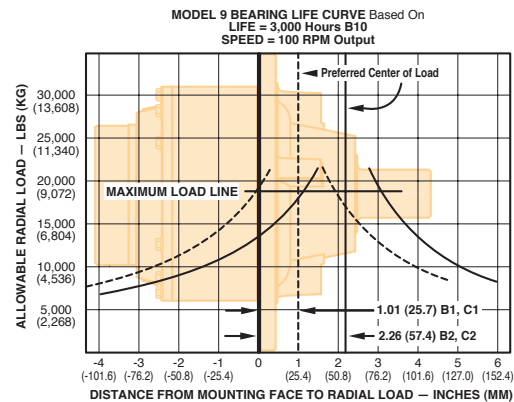
OPTIONS	DESCRIPTION	MAKE ALL SELECTIONS WITHIN ONE COLUMN		ORDER CODES	USE OPTION ORDER CODES TO BUILD PART NUMBER			
MOTOR PILOT/HUB	B1	•		9SB1	9SB1			
	B2	•		9SB2				
	C1		•	9SC1				
	C2		•	9SC2				
INPUT SPLINE	13T. ¹⁶ / ₃₂	•		13	13			
	14T. ¹² / ₂₄	•	•	14				
RATIO OPTIONS	15.39:1	•	•	15				
	18.83:1	•	•	18				
	23.59:1	•	•	23				
	26.71:1	•	•	26				
	31.50:1	•	•	31				
	35.20:1	•	•	35				
	42.42:1	•	•	42		42		
	50.00:1	•	•	50				
OUTPUT SHAFTS	3.0" Keyed	•	•	K2				
	2.5" Hex	•	•	H1				
	2.625" Hex	•	•	H2				
	20T - 8/16	•	•	20				
	23T - 8/16	•	•	23S			23S	
	23T - 8/16	•	•	23L				
PARKING BRAKE	1,540 lb-in	•		B1				
	1,800 lb-in	•		B2			B2	
	2,400 lb-in	•		B3				
	2,400 lb-in	•	•	B4				
	3,200 lb-in	•		B5				
	3,600 lb-in	•	•	B6				
	4,200 lb-in	•	•	B7				
SPECIAL FEATURES	Oil Plug/ Shaft Side	•	•	P				P
	H.D. Multi-Lip Seal	•	•	T				

Select desired characteristics from chart, note correct order codes, and order using sample format shown at right: 9SB1 13 42 23S B2 P

MOTOR MOUNTING CHART	
MOTOR MOUNTING HOLE DIMENSIONS	DIAMETER
B1, B2, (2)–.500 (12.70) -13 UNC. 2B Thd Holes on 5.750 (146.05) B. C.*	ø 4.001 - 4.006 (101.62 - 101.75)
C1, C2 (4)– .500 (12.70) - 13 UNC. 2B Thd on 6.375 (161.93) B. C.*	ø 5.001 - 5.006 (127.02 - 127.15)

* "O" RING OR GASKET REQUIRED (Not Supplied by Auburn Gear)
 "O" RING SIZES: SAE "B" 2-155, SAE "C" 2-159

NOTE:
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NOTE:
 These curves are supplied as a design guide and apply to resultant radial load only. They indicate the importance of maintaining wheel position over the bearing center. For actual analysis, applications should be reviewed by Auburn Gear Engineering using data supplied on Application Data Form.

BEARING LOAD, LIFE AND SPEED RELATIONSHIPS

$$LF = \frac{SF \times R}{R'}$$

R = Allowable resultant load for given location from mounting flange

R' = Anticipated load at location from mounting flange

LF = Life Factor from table (see below)

SF = Speed Factor from table (see below)

OUTPUT SPEED (RPM)	SF	LF	BEARING HOURS B-10 LIFE
5	2.456	.584	500
10	1.994	.719	1000
20	1.620	.812	1500
30	1.435	.886	2000
40	1.316	.947	2500
50	1.231	1.000	3000
60	1.165	1.047	3500
70	1.113	1.090	4000
80	1.069	1.130	4500
90	1.032	1.166	5000
100	1.000	1.231	6000
200	.812	1.289	7000
300	.719	1.342	8000
400	.659	1.390	9000
500	.617	1.435	10000

CAUTION: The same torsional loading constraints used in the driving mode must be used in the braking mode when braking through the Power Wheel drive gear set.

Model 9 Spindle Output Drives - Double Reduction

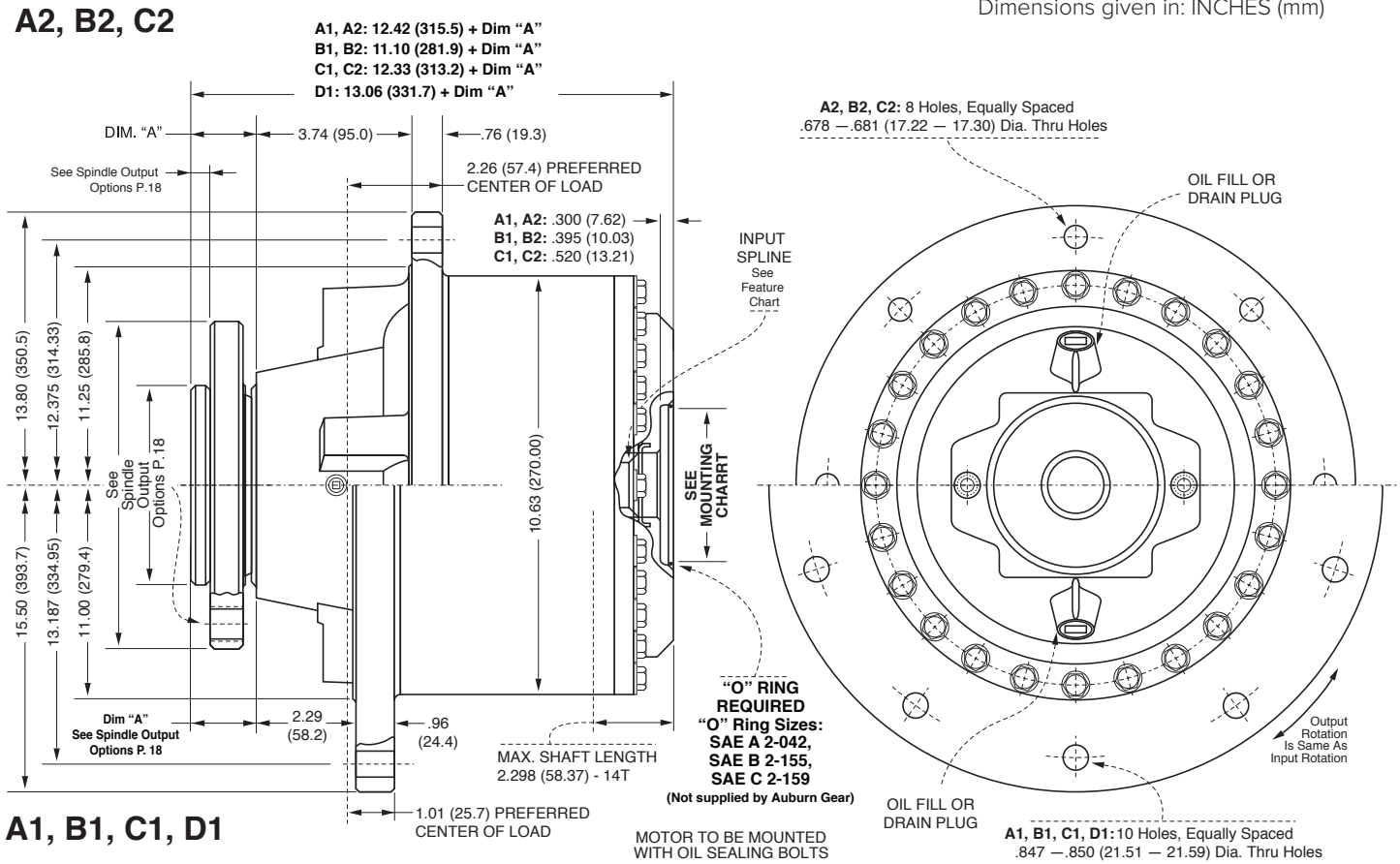
General Specifications

Max. intermittent output torque^{1,2}130,000 lb-in (14,690 Nm) Approximate Weight 208 lbs (94kg)
 Max. input speed²5,000 RPM Approximate Oil capacity..... 57 oz (1,685 cc)

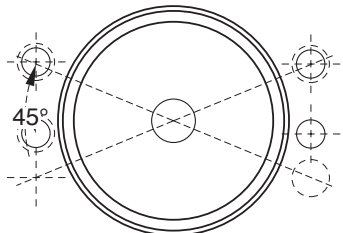
For Lubrication Data, see Page 22

¹Depending on the duty cycle and the nature of the application, a normal continuous output torque of 1/3 to 1/2 of the maximum intermittent should yield satisfactory Power Wheel life. Customer testing and application analysis is strongly recommended.

²If application exceeds published limits, contact Auburn Gear.



SAE A1, A2 Hole Layout



FEATURE CHART: MODEL 9 SPINDLE OUTPUT DRIVES - DOUBLE REDUCTION

OPTIONS	DESCRIPTION	MAKE ALL SELECTIONS WITHIN ONE COLUMN				ORDER CODES	USE OPTION ORDER CODES TO BUILD PART NUMBER			
MOTOR PILOT/HUB	A1	•				9SA1				
	A2	•				9SA2				
	B1			•	•	9SB1				
	B2			•	•	9SB2				
	C1	•	•			9SC1	9SC1			
	C2	•	•			9SC2				
	D1			•		9SD1				
INPUT SPLINE	13T ¹⁶ / ₃₂			•		13				
	13T ⁹ / ₁₆			•		13				
	14T ¹² / ₂₄	•				14		14		
	1" 6B				•	6B				
	17T ¹² / ₂₄	•				17				
RATIO OPTIONS	15.39:1	•		•	•	15				
	18.83:1	•	•	•	•	18				
	23.59:1	•		•	•	23				
	26.71:1	•		•	•	26				
	31.50:1	•		•	•	31		31		
	35.20:1	•		•	•	35				
	42.42:1	•		•	•	42				
	50.00:1	•		•	•	50				
OUTPUT SPINDLE	Tapped Holes ⁵ / ₈	•	•	•	•	F1				F1
	Thru Holes	•	•	•	•	F2				
	Tapped Holes ³ / ₄	•	•	•	•	F5				
SPECIAL FEATURES	Boot Seal	•	•	•	•	Z				Z
	Brake Disc Holes	•	•	•	•	DH				
	Metal Seal Guard*	•	•		•	G				
	Oil Plug/ Spindle Side	•	•	•	•	P				
	Metal Spindle Guard*	•	•		•	G1				

Select desired characteristics from chart, note correct order codes, and order using sample format shown at right:

9SC2 14 35 F1 Z

*Only available with A2, B2, AND C2 mountings and the F5 spindle configuration.

MOTOR MOUNTING CHART

MOTOR MOUNTING HOLE DIMENSIONS	DIAMETER
A1, A2 (4)–.500 (12.70) -13 UNC 2B Thd Holes on 4.188 (106.38) B.C.	ø 3.251 - 3.256 (82.58 - 82.70)
B1, B2 (2)–.500 (12.70) -13 UNC. 2B Thd Holes on 5.750 (146.05) B. C.*	ø 4.001 - 4.006 (101.62 - 101.75)
C1, C2 (4)– .500 (12.70) - 13 UNC. 2B Thd Holes on 6.375 (161.93) B. C.*	ø 5.001 - 5.006 (127.02 - 127.15)
AND (2)– .625 (15.88) -11 UNC 2B Thd Holes on 7.125 (180.98) B.C.	
D1 (4)–.750 (19.05) -10 UNC. 2B Thd Holes on 9.00 (228.60) B. C.	ø 6.001 - 6.006 (152.43 - 152.55)

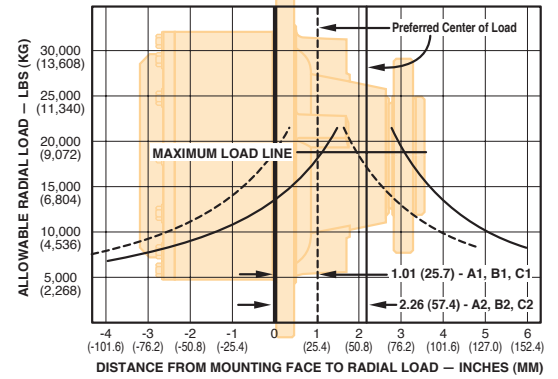
* "O" RING OR GASKET REQUIRED (Not Supplied by Auburn Gear)

"O" RING SIZES: SAE "A" 2-042, SAE "B" 2-155, SAE "C" 2-159, SAE "D" 2-163

NOTE:

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MODEL 9 BEARING LIFE CURVE Based On
LIFE = 3,000 Hours B10
SPEED = 100 RPM Output



NOTE:

These curves are supplied as a design guide and apply to resultant radial load only. They indicate the importance of maintaining wheel position over the bearing center.

For actual analysis, applications should be reviewed by Auburn Gear Engineering using data supplied on Application Data Form.

BEARING LOAD, LIFE AND SPEED RELATIONSHIPS

$$LF = \frac{SF \times R}{R'}$$

R = Allowable resultant load for given location from mounting flange

R' = Anticipated load at location from mounting flange

LF = Life Factor from table (see below)

SF = Speed Factor from table (see below)

OUTPUT SPEED (RPM)	SF	LF	BEARING HOURS B-10 LIFE
5	2.456	.584	500
10	1.994	.719	1000
20	1.620	.812	1500
30	1.435	.886	2000
40	1.316	.947	2500
50	1.231	1.000	3000
60	1.165	1.047	3500
70	1.113	1.090	4000
80	1.069	1.130	4500
90	1.032	1.166	5000
100	1.000	1.231	6000
200	.812	1.289	7000
300	.719	1.342	8000
400	.659	1.390	9000
500	.617	1.435	10000

CAUTION: The same torsional loading constraints used in the driving mode must be used in the braking mode when braking through the Power Wheel drive gear set.

Model 9 Spindle Output Drives - Double Reduction with A2 Series Integral Parking Brake¹

General Specifications

Max. intermittent output torque ^{2,3}	130,000 lb-in (14,690 Nm)	Approximate Weight	220 lbs (100kg)
Max. input speed ⁴	3,500 RPM	Approximate Oil capacity.....	57 oz (1,685 cc)

For Lubrication Data, see Page 22 | For Brake Data, see Page 3

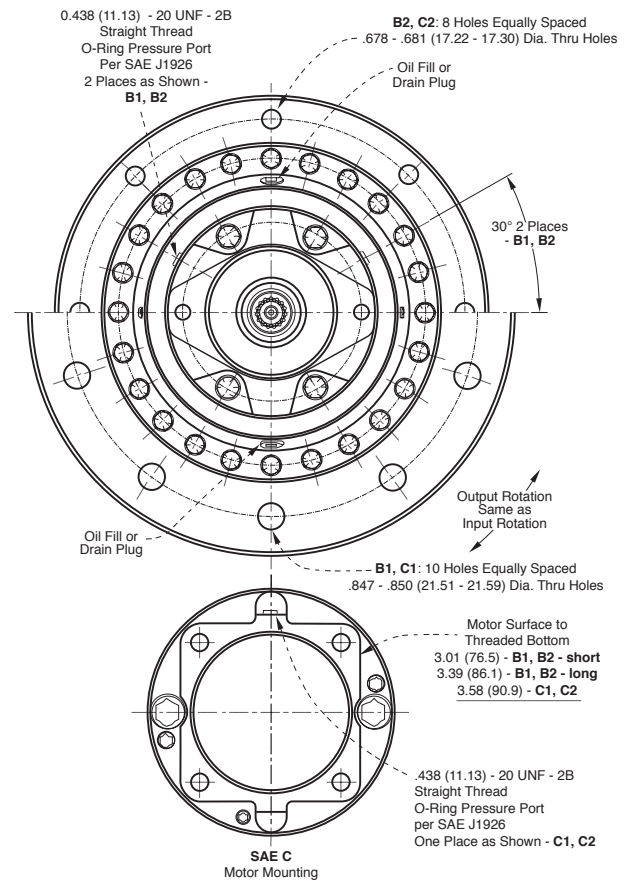
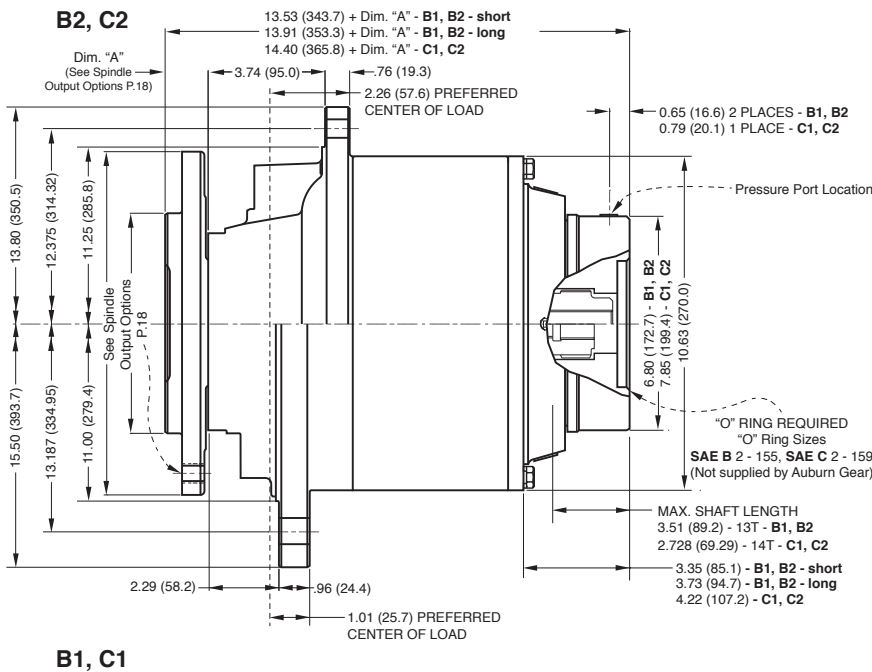
¹For vertical applications, spindle up or spindle down, contact Auburn Gear.

²Depending on the duty cycle and the nature of the application, a normal continuous output torque of 1/3 to 1/2 of the maximum intermittent should yield satisfactory Power Wheel life. Customer testing and application analysis is strongly recommended.

³If application exceeds published limits, contact Auburn Gear.

⁴For input speeds exceeding 3,500 rpm, contact Auburn Gear for duty cycle analysis.

Dimensions given in: INCHES (mm)



FEATURE CHART: MODEL 9 SPINDLE OUTPUT DRIVES - DOUBLE REDUCTION with A2 SERIES BRAKE

OPTIONS	DESCRIPTION	MAKE ALL SELECTIONS WITHIN ONE COLUMN		ORDER CODES	USE OPTION ORDER CODES TO BUILD PART NUMBER			
MOTOR PILOT/HUB	B1	•		9SB1	9SB1			
	B2	•		9SB2				
	C1		•	9SC1				
	C2		•	9SC2				
INPUT SPLINE	13T ¹⁶ / ₃₂	•		13	13			
	14T ¹² / ₂₄	•	•	14				
RATIO OPTIONS	15.39:1	•	•	15				
	18.83:1	•	•	18				
	23.59:1	•	•	23				
	26.71:1	•	•	26				
	31.50:1	•	•	31				
	35.20:1	•	•	35				
	42.42:1	•	•	42		42		
50.00:1	•	•	50					
OUTPUT SPINDLE	Spindle Tapped Holes ⁵ / ₈	•	•	F1				
	Spindle Thru Holes	•	•	F2			F2	
	Spindle Tapped Holes ³ / ₄	•	•	F5				
PARKING BRAKE*	LONG VERSION							
	SHORT VERSION							
	1,540 lb-in	•		B1				
	1,800 lb-in	•		B2				
	2,400 lb-in	•		B3			B3	
	2,400 lb-in	•	•	B4				
	3,200 lb-in	•	•	B5				
3,600 lb-in	•	•	B6					
4,200 lb-in	•	•	B7					
SPECIAL FEATURES	Boot Seal	•	•	Z				Z
	Brake Disc Holes	•	•	DH				
	Metal Seal Guard**	•	•	G				
	Metal Spindle Guard**	•	•	G1				

Select desired characteristics from chart, note correct order codes, and order using sample format shown at right:

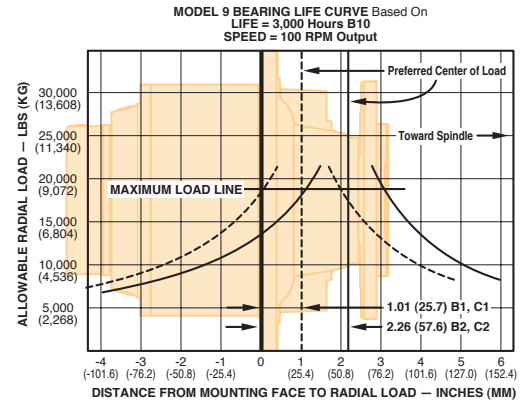
9SB1 13 42 F2 B3 Z

* FOR HORIZONTAL OPERATION ONLY. Where vertical operation is required, contact Auburn Gear.
**Only available with B2, AND C2 mountings and the F5 spindle configuration.

MOTOR MOUNTING CHART	
MOTOR MOUNTING HOLE DIMENSIONS	DIAMETER
B1, B2 (2)–.500 (12.70) -13 UNC. 2B Thd Holes on 5.750 (146.05) B. C.*	ø 4.001 - 4.006 (101.62 - 101.75)
C1, C2 (4)– .500 (12.70) - 13 UNC. 2B Thd Holes on 6.375 (161.93) B. C.*	ø 5.001 - 5.006 (127.02 - 127.15)

* "O" RING OR GASKET REQUIRED (Not Supplied by Auburn Gear)
"O" RING SIZES: SAE "B" 2–155, SAE "C" 2–159

NOTE:
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NOTE:
These curves are supplied as a design guide and apply to resultant radial load only. They indicate the importance of maintaining wheel position over the bearing center. For actual analysis, applications should be reviewed by Auburn Gear Engineering using data supplied on Application Data Form.

BEARING LOAD, LIFE AND SPEED RELATIONSHIPS

$$LF = \frac{SF \times R}{R'}$$

R = Allowable resultant load for given location from mounting flange

R' = Anticipated load at location from mounting flange

LF = Life Factor from table (see below)

SF = Speed Factor from table (see below)

OUTPUT SPEED (RPM)	SF	LF	BEARING HOURS B-10 LIFE
5	2.456	.584	500
10	1.994	.719	1000
20	1.620	.812	1500
30	1.435	.886	2000
40	1.316	.947	2500
50	1.231	1.000	3000
60	1.165	1.047	3500
70	1.113	1.090	4000
80	1.069	1.130	4500
90	1.032	1.166	5000
100	1.000	1.231	6000
200	.812	1.289	7000
300	.719	1.342	8000
400	.659	1.390	9000
500	.617	1.435	10000

CAUTION: The same torsional loading constraints used in the driving mode must be used in the braking mode when braking through the Power Wheel drive gear set.

Model 9 Shaft Input/Shaft Output Drives - Double Reduction

General Specifications

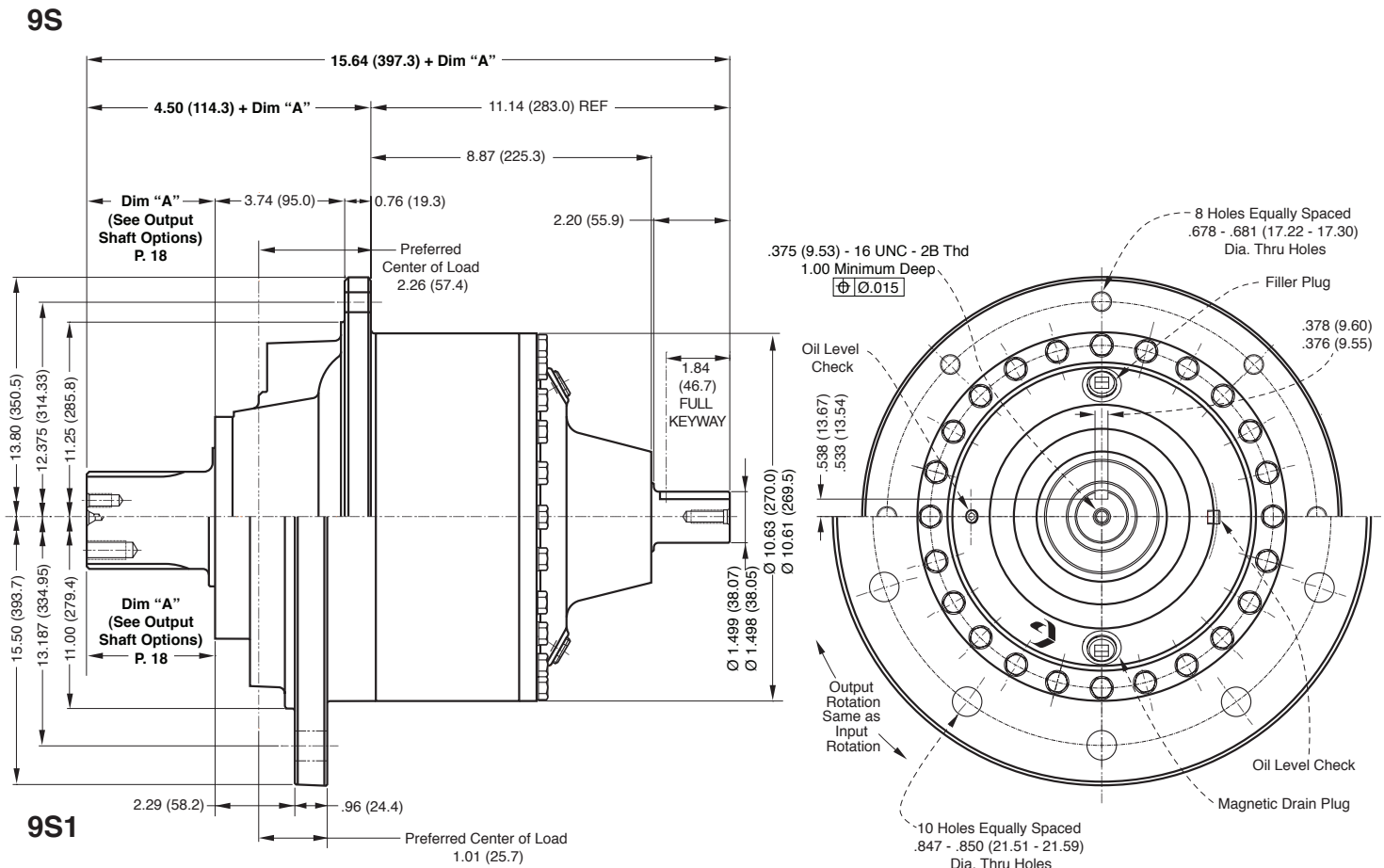
Max. intermittent output torque ^{1,2}	130,000 lb-in (14,690 Nm)	Approximate Weight	224 lbs (101.6kg)
Max. input speed ²	5,000 RPM	Approximate Oil capacity.....	57 oz (1,685 cc)

For Lubrication Data, see Page 22

¹Depending on the duty cycle and the nature of the application, a normal continuous output torque of 1/3 to 1/2 of the maximum intermittent should yield satisfactory Power Wheel life. Customer testing and application analysis is strongly recommended.

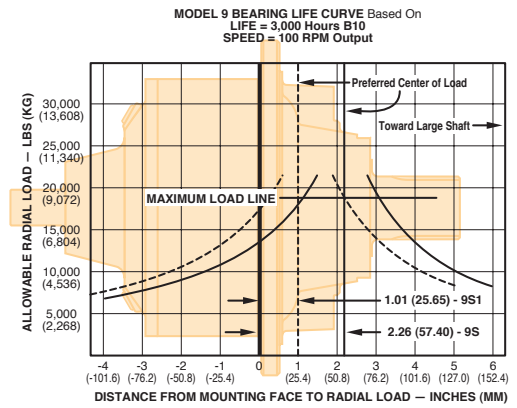
²If application exceeds published limits, contact Auburn Gear.

Dimensions given in: INCHES (mm)



FEATURE CHART: MODEL 9 SHAFT INPUT/SHAFT OUTPUT DRIVES - DOUBLE REDUCTION

OPTIONS	DESCRIPTION	MAKE ALL SELECTIONS WITHIN ONE COLUMN	ORDER CODES	USE OPTION ORDER CODES TO BUILD PART NUMBER			
HUB	Small Flange	•	9S	9S			
	Large Flange	•	9S1				
INPUT SHAFT OPTIONS	1 1/2" Keyed	•	K00		K00		
RATIO OPTIONS	15.39:1	•	15			23	
	18.83:1	•	18				
	23.59:1	•	23				
	26.71:1	•	26				
	31.50:1	•	31				
	35.20:1	•	35				
	42.42:1	•	42				
50.00:1	•	50					
OUTPUT SHAFTS	3.0" Keyed	•	K2				20
	3.0" Keyed	•	K5				
	20T 8/16	•	20				
	23T 8/16	•	23S				
	23T 8/16	•	23L				
Select desired characteristics from chart, note correct order codes, and order using sample format shown at right:				9S	K00	23	20



NOTE:

These curves are supplied as a design guide and apply to resultant radial load only. They indicate the importance of maintaining wheel position over the bearing center.

For actual analysis, applications should be reviewed by Auburn Gear Engineering using data supplied on Application Data Form.

BEARING LOAD, LIFE AND SPEED RELATIONSHIPS

$$LF = \frac{SF \times R}{R'}$$

R = Allowable resultant load for given location from mounting flange

R' = Anticipated load at location from mounting flange

LF = Life Factor from table (see below)

SF = Speed Factor from table (see below)

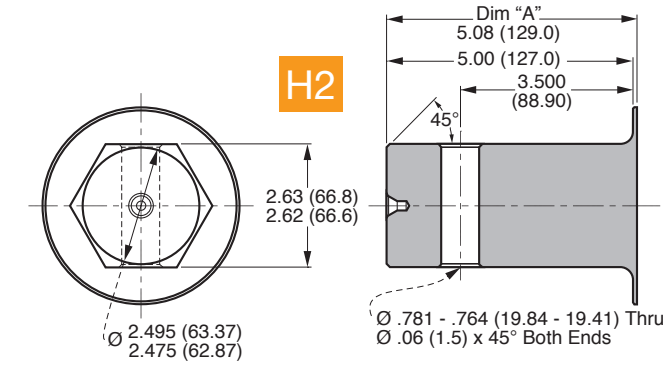
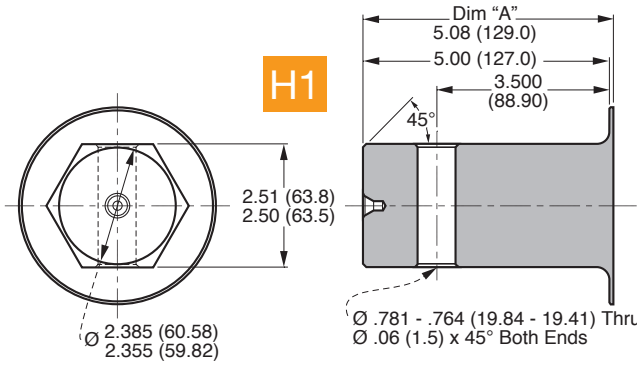
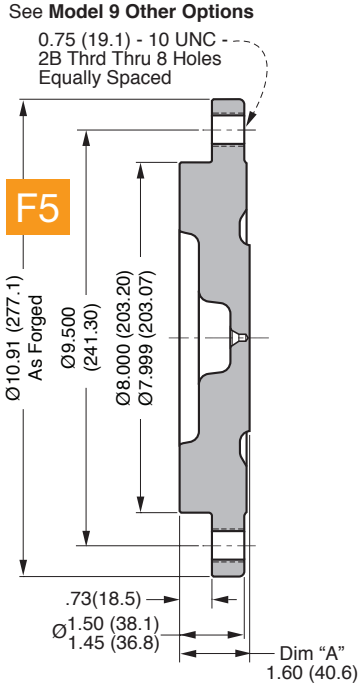
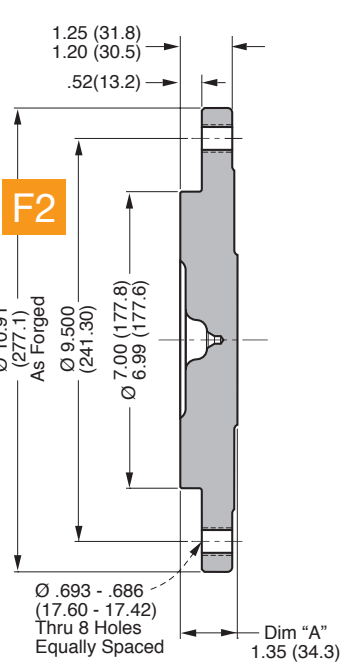
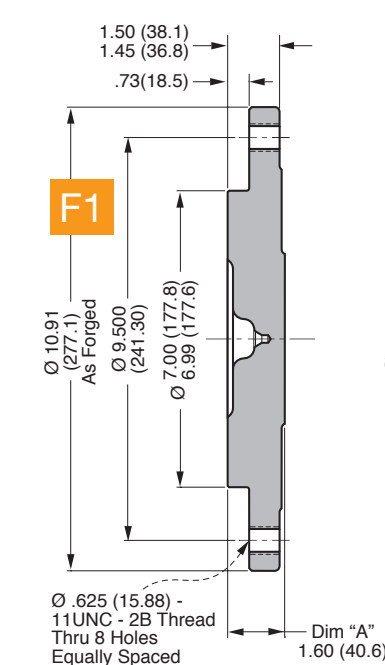
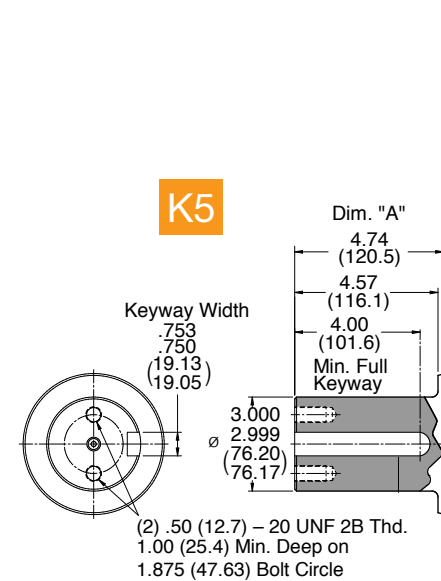
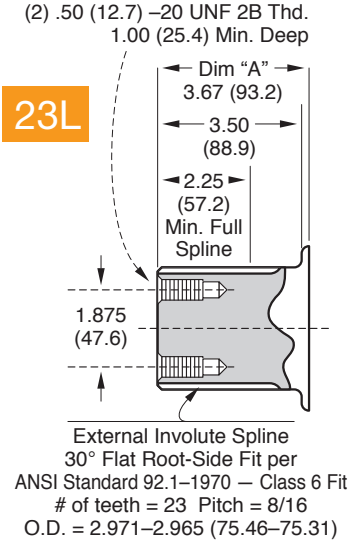
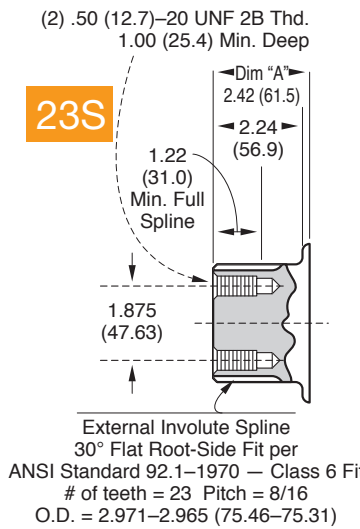
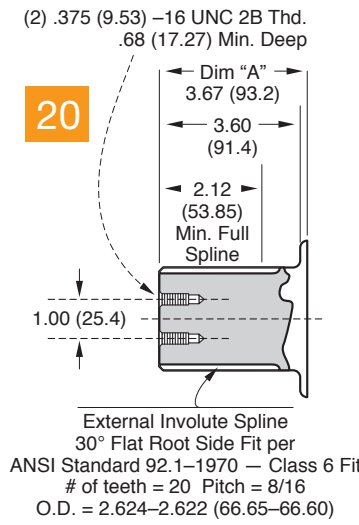
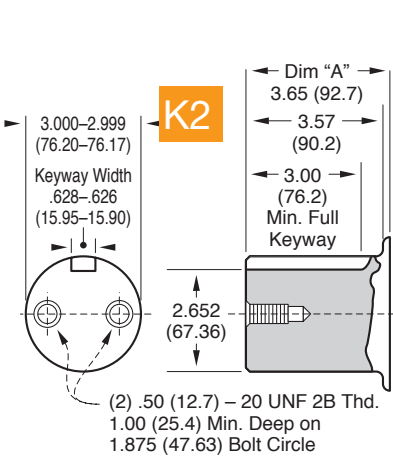
OUTPUT SPEED (RPM)	SF	LF	BEARING HOURS B-10 LIFE
5	2.456	.584	500
10	1.994	.719	1000
20	1.620	.812	1500
30	1.435	.886	2000
40	1.316	.947	2500
50	1.231	1.000	3000
60	1.165	1.047	3500
70	1.113	1.090	4000
80	1.069	1.130	4500
90	1.032	1.166	5000
100	1.000	1.231	6000
200	.812	1.289	7000
300	.719	1.342	8000
400	.659	1.390	9000
500	.617	1.435	10000

CAUTION: The same torsional loading constraints used in the driving mode must be used in the braking mode when braking through the Power Wheel drive gear set.

NOTE:

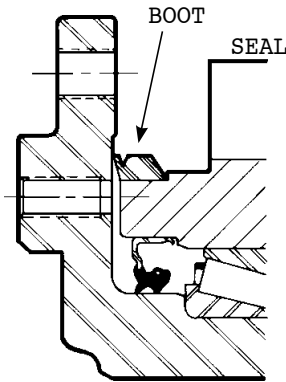
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OUTPUT SHAFT OPTIONS



Boot Seal

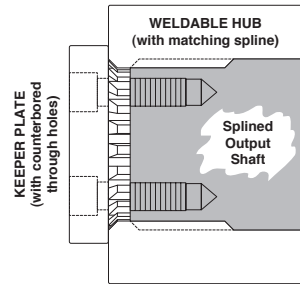
An optional seal that protects the main oil seal from dirt and other debris. The boot seal will give extended life on applications operating in extremely muddy or dirty conditions. Boot seals are available on a selective model basis.



Weldable Hub

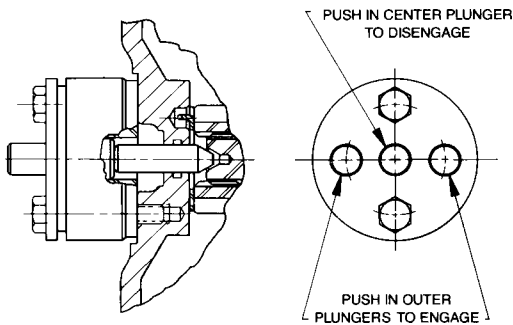
The hubs are 4140H steel and can be turned down and/or welded for mounting sprockets, pulleys, or other devices. A circular keeper plate secures the hub to the splined output shaft with two bolts (keeper plate and bolts included.)

KIT NUMBER	SPLINE	FITS MODELS
6420105	23T- ¹² / ₂₄	5, 6, & 8
6420106	23T- ⁸ / ₁₆	7, 8, 9, & 10
6420107	20T- ⁸ / ₁₆	8, & 9



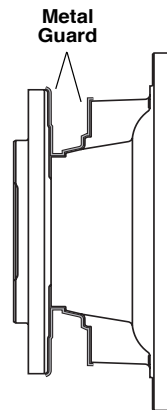
Quick Disconnect

This optional disconnect is available on all wheel drives. No tools are needed to disengage the drive. The planetary drive is disengaged with the push of a button. The quick disconnect eliminates removal of the disconnect cover and external contaminants are sealed from the units by internal O-rings and a gasket that is sandwiched between the disconnect and planetary cover. The rugged, compact design ensures dependable service.



Guard and Boot Seal System

A boot seal and metal guard are available with the Model 9WB2 and 9WC2 wheel drives, as well as the 9SB2 and 9SC2 spindle output drives with the F5 spindle only. These can be ordered separately or together. They function best together. The guard and boot seal system are utilized in extremely high grit applications. The guard protects the boot seal from contaminants which will ultimately wear the boot seal lip.



LUBRICATION DATA

POWER WHEEL PLANETARY DRIVES ARE SHIPPED WITHOUT LUBRICANT AND MUST BE FILLED TO THE PROPER LEVEL PRIOR TO START-UP

1. Type

In normal application use an extreme pressure lubricant API-GL-5 approved. AGI recommends SAE 80W, 90, 80W-90 and 85W-90 grades of lube under normal climate and operating conditions. See chart below. For severe or abnormal applications with special requirements consult either Auburn Gear or a lubricant manufacturer for further assistance.

2. Change Interval

Initial lubrication change after 50 hours of operation. Subsequent changes every 1000 hours or yearly whichever occurs first.

3. Lube Temperature

Continuous operating temperatures of 160°F are allowable. Maximum intermittent temperature recommended is 200°F.

4. Amount of Lube

The unit should be half full when mounted horizontal. Lube levels for other mounts will vary. Consult Auburn Gear for details.

5. Shaft or Spindle Up Mounting

If mounting unit vertically with shaft or spindle up, special provisions apply to ensure adequate lubrication of output bearings. Consult Auburn Gear.

AUBURN GEAR POWER WHEEL LOW TEMPERATURE GEAR LUBE REQUIREMENT	
SAE VISCOSITY GRADE	AUBURN GEAR RECOMMENDED MINIMUM TEMPERATURE
75W-90	-40°F (-40°C)*
80W, 80W-90	-15°F (-26°C)*
85W, 85W-90	10°F (-12°C)*
90	35°F (2°C)

* Maximum temperature for Brookfield Viscosity¹ of 150,000 centipoise of (cP)² per SAE J306 MAR85

¹ Brookfield Viscosity - apparent viscosity as determined under ASTM D 2983

² 150,000 cP determined to provide sufficient low temperature lube properties for Auburn Gear Power Wheels

All Power Wheels® are compatible with synthetic lubricants as long as they meet the above specified parameters.

Power Wheel® Warranty

Seller warrants to Purchaser that its Power Wheel® planetary gear products are free from defects in material and workmanship under normal use and service for a period of one year from the date the product is shown to have been placed into operation by original user or for two years from date of shipment from seller's plant, whichever shall first occur.

Seller's obligation under this warranty is expressly limited to the repair or replacement at its option, of the Power Wheel which is returned with a written claim of defect f.o.b. seller's factory, Auburn, Indiana, U.S.A., and which is determined by Seller to be defective in fact.

THIS IS THE SOLE AND ONLY WARRANTY OF SELLER AND NO OTHER WARRANTY IS APPLICABLE EITHER EXPRESSED OR IMPLIED, IN FACT OR BY LAW, INCLUDING ANY WARRANTY AS TO MERCHANTABILITY OF FITNESS FOR A PARTICULAR USE OR PURPOSE.

The sole and only remedy in regard to any defective Power Wheel shall be the repair or replacement thereof herein provided, and seller shall not be liable for any consequential, special, incidental, or punitive damages, losses or expenses resulting from or caused by any defects.

AUBURN GEAR LLC

AUBURN, INDIANA, U.S.A.



WORKSHEET

GENERAL

CUSTOMER _____ DATE _____
APPLICATION _____
MODEL OR TYPE _____
DESIGN LIFE REQUIRED (L10) _____

WHEEL DRIVE DATA

GVW _____ NO. OF DRIVING WHEELS _____
% OF WEIGHT OVER DRIVE WHEELS _____ FRONT _____ REAR _____
% GRADEABILITY REQUIRED _____ MAXIMUM _____ AVERAGE _____
SPEED REQUIREMENTS _____ MAXIMUM _____ WORKING _____ GRADE _____
TIRE SIZE _____ FRONT _____ REAR _____
ROLLING RADIUS _____ FRONT _____ REAR _____
RIM OFFSET _____ FRONT _____ REAR _____
ROAD CONDITIONS _____
DUTY CYCLE INFORMATION:
COND #1 _____ % @ _____ % GRADE @ _____ MPH @ _____ Radial Load (lb)
COND #2 _____ % @ _____ % GRADE @ _____ MPH @ _____ Radial Load (lb)
COND #3 _____ % @ _____ % GRADE @ _____ MPH @ _____ Radial Load (lb)
COND #4 _____ % @ _____ % GRADE @ _____ MPH @ _____ Radial Load (lb)

SHAFT, SPINDLE OR SWING DRIVE DATA

MAXIMUM TORQUE REQUIRED _____ CONTINUOUS _____
MAX. SPEED REQUIRED _____ CONTINUOUS _____
MAX. OVERHUNG LOAD _____
DISTANCE MTG. FLANGE TO OVERHUNG LOAD _____
SPROCKET OR PINION DATA:
PITCH DIA. _____ GEAR PITCH _____
PRESSURE ANGLE _____ NO. OF TEETH _____
DUTY CYCLE INFORMATION:
COND #1 _____ % @ _____ LB. IN. @ _____ RPM @ _____ Average Load (lb)
COND #2 _____ % @ _____ LB. IN. @ _____ RPM @ _____ Average Load (lb)
COND #3 _____ % @ _____ LB. IN. @ _____ RPM @ _____ Average Load (lb)
COND #4 _____ % @ _____ LB. IN. @ _____ RPM @ _____ Average Load (lb)

HYDRAULICS

HYDRAULIC MOTOR MODEL NO. _____ MFR. _____
TYPE OF OUTPUT SHAFT (13T - 1/32, etc.) _____
SAE MOUNTING DESIGNATION (A, B, etc.) _____ 2-BOLT _____ 4-BOLT _____
DISPLACEMENT (CU.IN./REV.) _____ RELIEF SETTINGS (PSI) _____
TORQUE _____ LB. IN. @ _____ PSI MAXIMUM

BRAKE DATA

BRAKE RELEASE TYPE: CHARGE PRESSURE _____ SYSTEM PRESSURE _____
BRAKE MODEL NO. _____ MFR. (If not Auburn Gear) _____
OTHER (NAME) _____ PRESSURE RANGE (PSI) _____
MINIMUM PRESSURE TO BRAKE WHEN BRAKE IS APPLIED (PSI) _____
BRAKE TORQUE _____

SPECIAL OPERATING CONDITIONS

